

ICT Exacerbates the Human Side of the Digital Divide

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INTRODUCTION

Ethnic and racial tensions are aggravated by social inequities; perhaps it is the media that unwittingly feeds this dilemma. Look at how often we are directed to the Internet for further information. While exploring the Internet may be easy for some computer users, others demonstrate a complete avoidance for this type of knowledge exchange. Moreover, some misunderstandings that occur between cultural communities may be exacerbated by a phenomenon that has become known as the digital divide. There are various definitions of this term. One view takes a purely socio-political focus relating to a socio-economic gap between communities that have access to computer technologies and the Internet and those who do not. Another view covers a broader technological spectrum to include media of any sort, and the information and communications technologies (ICTs). No matter which definition is used, the lack of access to information, for whatever reason, may perpetuate a meaningful gap in cultural differences; the result of which may lead to a more serious communication breakdown throughout the community. This short article argues for more research on measuring the effectiveness of increased opportunities for Web-mediated cross-cultural/intergenerational knowledge sharing that is designed to overcome the ever widening digital divide.

BACKGROUND

It is useful to look at the ways in which a country such as Australia faces its significant socio-economic challenges. The literature reveals that this nation is one of the most multicultural countries in the world (Tsang, 1995), weaving cultural diversity and associated tensions into the social fabric. Furthermore, like many other nations, census statistics show us that Australia is fast becoming an aging nation. These two demographic features may give rise to communication problems associated with cultural and intergeneration discord. Unfortunately, current research appears to be ignoring the importance of the relationship between socio-cultural interaction and Web-mediated knowledge exchange. Moreover, there has been an unrealistic expectation that Web technologies would facilitate the engagement of people to share information through collaborative team work. Consequently, there

were calls for researchers to become involved with ICTs to investigate these promises of collaborative Web-mediated information-sharing. Although this work has been taken up by the computer-supported collaborative learning (CSCL) protagonists, projects are still needed to correctly identify the complexity of the Web-mediated interactivity between humans and technology.

Even though the problem of rapidly evolving electronic multimedia was identified over a decade ago, the technologists are still excited today with our ability to create virtual information environments. However, for the more technologically challenged person, it would seem that we have become oblivious to how much we rely on ICTs that continue to change at an ever-increasing rate (Flicker, 2002). Using Australia again as the example, there is a distinct gap between theory and practice that exists within the population for opportunities to utilize ICTs to promote multicultural interaction and knowledge sharing. This disparity can be seen in terms of marked differences in access to the Internet for: enhancing multicultural sharing, promoting knowledge transfer between generations, and facilitating quality outcomes in special education (Stephanidis, 2001).

The aim of this short article is to suggest that ICTs can provide a useful set of easy tools to reduce some of the accessibility problems created by rapidly changing communications media. Issues that are causing concern among the communities who are cognizant of the harmful effects of the digital divide include: the forgotten human-dimension, cultural diversity, and the unequal accessibility to online information.

HUMAN ICT INTERFACE: IMPACTING FACTORS CAUSING CONCERN

To the discerning reader, the dualistic nature of human-computer interaction (HCI) is apparent. Some believe there is an intrinsic capability for HCI to span a socio-dimension in seeking solutions for people's problems; and moreover that ICTs provide effective conduits for producing appropriate outcomes. Yet as we get brighter, smarter machinery, the greater the perils of the digital divide become (McKay, 2005). If, in time, research can show this is the case, then, the predicted Big Brother phenomenon of the 1960s has

won. One only needs to look at the wireless technologies currently available. Consider the mobile phone technologies; the connectivity that is possible today is amazing. However, it is no secret that people do need to be in a position to purchase these smart-technology devices in order to join in this electro-knowledge revolution.

Inappropriate Web-Technologies can Exacerbate the Digital Divide

Deciding which technology to implement adds to the dilemma. While hardware and software standards are still evolving (Sonwalkar, 2005), the standards development's emanating from the Institute of Electrical and Electronics Engineers Inc. (IEEE) and the International Organization for Standardization (ISO) are largely mechanistic and concentrate on interoperability and integration. However, the human-dimension is taken up by the World Wide Web Consortium (W3C) and Web Access Initiative (WAI) accessibility standards (W3C, 2005). The W3C makes recommendations for Web-technologies; while the WAI deals with the issues of increasing accessibility for people with disabilities. The WAI Web-content accessibility guidelines are making progress to clarify the distinctions between technology and content. Unfortunately, Web-technologies can only be viewed as inert mechanisms that initiate nothing more than a means for online communication. Instead, our expectations of the social interface that implements ICT in a global context should involve two levels (Chan, 2003): secure ideological exchange between individuals, and clear representation of cultural perspectives. Therefore, Web-mediated knowledge sharing in this multi-dimensional environment will always be problematic.

Forgotten Human-Dimension

What is to happen with the people who cannot join in? This is where the human-dimension of HCI has an important role to play; to avoid or lessen the inevitable widening digital divide. Sadly, this role is not currently being fulfilled. Inequable access to information through ICT remains the status quo. The digital divide emphasizes the weaknesses of the human-dimensions of current HCI ideology. Moreover, there is a wrongly-focused assumption that all people can access information through a normal range of perceptual senses. To this end, we can see that the literature reveals there is a growing awareness of the belief that one-size-fits-all. This is more poignant through the business/government sectors where access to information affects the bottom line. An example of where ICT is not serving the wider community is to recall our recent graphic witnessing of naturally occurring disasters that affect whole nations; much of this global information sharing was only made possible through ICTs.

These types of macro-events test out our ability to provide accessible information to all. Although the initial tsunami struck Indonesia 3½ hours before landing in Sri Lanka and India, our ICTs failed to convey any effective warnings! When it may be reasonable to think that equitable access to information is on the rise, the reverse may be true.

Why has this problem surrounding equal access to global information not been solved? In searching for an explanation of why the issue is now so acute; part of the answer may be that many of us with easy access to computers and the Internet appear to be blinded by technology. We have become accustomed to working quickly, many suffering from information overload. No wonder e-mail has become a common communications tool. However, in the rush to increase their coverage of the electronic information placed before them, tracking the snippets of misplaced knowledge scattered throughout our server mailboxes soon becomes unmanageable. Because of this, the human-dimension of HCI is now quite frail. To understand this, it is useful to reflect on how far we have come in a relatively short period of time.

It has taken less than 2-decades to see the information revolution unfolding. Our obsession on machinery was identified early by Dreyfus and Dreyfus (1986). Another example of where we commenced clinging to the notions that HCI could bring about the seamless ICTs we experience today can be seen in work on the Pask Conversation Theory and the subsequent computer language called *Protologic* (Lp). Pask concentrated on how to emulate the unique ways humans communicate. Although he was convinced that computer learning systems could teach by adapting to a learner's requirements (Pask, 1984), we are still unable to say this has been achieved (Izard & McKay, 2004).

Nonetheless, there is more compelling evidence of this ongoing tension between effective HCI and ICT continuing into the coming decade. Here is where the biggest problem exists. This is perhaps the real nexus of the HCI divide. Questions continue to arise about how best to represent human intelligence on a machine. Nobody really knows! The social sciences and artificial intelligence (AI) proponents cannot agree. On the one hand, the AI view of HCI continues to reflect their commitment towards a more mechanistic view of this phenomenon. While the softer sciences (philosophy, sociology, and anthropology) argue for understanding of the consequences for the human-dimension of technological developments (Preece, 2002). This vexing struggle is about making balanced and sensible choices for the type of HCI employed by our ICTs to advantage the human-dimension. No wonder that effective HCI remains unconquered. Even when there are recognized standards in place, where are the mechanisms in place to maintain compliance?

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